Custom Solutions for Today’s Manufacturing Challenges

For more than 60 years, Momentive has helped power the aerospace journey. Momentive’s silicone products are integral to the assembly and operation of aircraft, spacecraft and military platforms. Our silicones were in the boots of the first astronaut to walk on the moon and have been part of every US manned space flight since then. Momentive uses the experience from thousands of hours of flight and in-space time, to innovate new products that help our partners continue the aerospace legacy. Momentive is proud to work with many of today’s pioneering aerospace and defense companies to provide solutions for the manufacturing challenges of today. Momentive employs a rapid development process and customizable chemistry platforms along with dedicated chemists and a global network of state-of-the-art application development centers to invent new products that solve customer challenges. Whether you need a customized solution or a tried and true product, Momentive has the people and the solutions to help you achieve your goals.

Momentive’s Advantages

- Time-tested chemistries with over 60 years of flight time and in-space experience
- A comprehensive suite of vertically integrated products that can be adapted and customized for new applications
- Rapid development process led by teams of experienced Chemists and Application Development Engineers
- World-class application development centers equipped with state-of-the-art analytical and engineering tools
- Onsite customer process analysis and solution development
- Experience meeting stringent aerospace and military regulations
- Expert technical support from consultation to implementation and beyond

Why Silicone RTVs

- Long term stability over a broad range of extreme temperatures from -115°C (-175°F) to 260°C (500°F)
- Sustained flexibility, adhesion and sealing in extreme temperatures
- Outstanding weather resistance for use in rugged applications
- Ability to withstand fuels and solvents
- Excellent electrical insulation properties for use with sensitive circuits
- Available low outgassing solutions to protect optics, solar arrays, avionics and crew compartments
- Deep section cure over a broad range of temperatures and humidity levels
- Customizable curing that can match the assembly process
- Available in a wide range of viscosities - from non-flowable pastes to liquids to accommodate a broad range of application needs
- Available in a wide-range of colors that meet military and government specifications

Momentive’s silicone materials were in the boots that took the first step on the moon.
One-Component, Room Temperature Cure Adhesives and Sealants

**RTV 100 Series Ready-to-Use Adhesives**
Moments’s premier line of adhesive sealants
- FDA, UL, NSF, and USDA recognition
- Meets MIL-A-46106 specifications
- Available in both paste and flowable grades
- Primerless adhesion to many substrates
- RTV102, RTV103, RTV108 and RTV109 can be applied to vertical and overhead surfaces
- RTV112 and RTV118 are self-leveling to flow into small crevices and hard-to-reach places
- RTV 106 and RTV 116 offer high temperature performance in paste or self-leveling products

**RTV 133 Flame Resistant Adhesives**
For applications requiring burn protection
- One-component adhesive
- High strength
- Primerless adhesion to many substrates
- Non-corrosive (alkoxy) cure
- UL94 V-0 component recognition

**RTV 142 Paste Adhesives**
Used for electronic gasketing or vertical/overhead applications
- Non-corrosive
- Low-outgassing

**RTV 157 and RTV 159 High Strength Paste Adhesives**
Acetoxy Cure, High Strength Adhesion
- RTV 157 and RTV 159 combine high strength and high temperature performance with an acetoxy cure

**RTV 160 Series Non Corrosive Adhesives**
- Non-corrosive to sensitive metals
- Available in multiple viscosities
- UL component recognition
- RTV 162 and RTV 167 paste adhesives comply with MIL-A-46146
- RTV 167 is a high strength paste
- RTV 160 is a flowable material

**FRV 1106 and FRV 1109 Fluid Resistant Adhesive Sealants**
Fluid resistance to many liquids
- For applications exposed to fuels, solvents and chemicals
- Primerless adhesion
- Acetoxy, room temperature cure
- Weathering resistance

**SilCool** Thermally Conductive LTR Adhesives
Helps transfer heat in critical applications
- Available in both room temperature and heat cure
- One or two-component options
- Multiple viscosities available from flowable to paste-like
- Thermally conductive greases available for applications that require removability or reworkability

**RTV 31, RTV 60 and RTV 88/88HB High Temperature Compounds**
High temperature two-part silicone materials
- Effective at temperatures from -54°C (-65°F) to 260°C (500°F)
- Available in multiple uncured viscosities
- RTV 31 and RTV 60 are designed for potting and encapsulating applications
- RTV 88/88HB is suitable for vertical or overhead surfaces

**SnapSil** Fast Cure Adhesives
Rapid curing to accommodate assembly lines, quick turnaround applications and maintenance and repair
- Fast, room temperature cure
- Two component high strength adhesives
- Available in a convenient single caulk gun
- Easy to use with a standard caulking gun
- Adheres to most substrates with no primer

**RTV 560, RTV 566, RTV 567, RTV 511, and RTV 577 Extreme Low and High Temperature Compounds**
Variable cure rate, low temperature adhesion
- Variable room temperature cure rates by adjusting the primer
- RTV 560 and RTV 566 offer a wide useful temperature range of -115°C (-175°F) to 260°C (500°F)
- RTV 566 and RTV 567 are designed for low outgassing applications
- RTV 511 is a flowable sealant
- RTV 577 is highly viscous for sealing and insulating on vertical and overhead surfaces

**RTV 582 and RTV 583 Extreme Low and High Temperature ESD Gap Fillers**
Anti-static encapsulant for spark-resistant applications
- Effective at temperatures from -115°C (-175°F) to 205°C (401°F)
- Deep section cure at room temperature
- RTV 582 is a white ESD filler with extreme low temperature performance

**RTV Primers**
SS4004P, SS4044P, SS4179, SS4120 SS4155
Used to increase adhesion on difficult to bond substrates or with specific RTV Adhesives. Typically brushed on prior to RTV application. Available for various application needs. Please see the Adhesion and Primer Guide for more information.

Two-Component, Room Temperature Cure Adhesives, Sealants and Potting Compounds/Encapsulants

**RTV 6100 Dielectric gels**
Liquid silicones that cure to a soft gel that can protect delicate electronic assemblies in harsh environments
- Preserves dielectric integrity
- Shock and vibration dampening
- Available in a variety of cure rates
- Primerless adhesion to most substrates
- RTV 6136 is a high strength gel
- RTV 6196 is a fast curing gel

**RTF 7000 Low Density Foam**
Generates a variable density foam when mixed
- Supplied as a two component liquid
- Generates foam when mixed

**InvisiSil** Optically Clear Encapsulants
High light transmittance and high refractivity for LEDs, inner layer display materials and optical device coatings
- Two-part silicone
- Non-yellowing
- Heat curable gels and elastomers
Avionics Applications

Long-term, reliable protection of sensitive electronic components is essential in many electronic applications today. Increasingly small systems and rising circuit densities have resulted in hotter operating temperatures, and driven demand for high-performance solutions for heat dissipation. Momentive has a wide range of products to address these challenges. SilCool® adhesives and compounds can deliver the high-thermal conductivity, thin bond lines, and low thermal resistance required for high-performance components. For avionics applications requiring environmental or stress protection, Momentive’s silicone adhesives, sealants, encapsulants, and potting materials can help you reduce costs and soar above the competition.

Adhesives for Thermal Protection Systems

Thermal protection systems perform one of the most critical roles in electronics applications. From insulating sensitive electronic components to protecting spacecraft and crew, Momentive’s RTV silicone products have been performing in the extreme temperatures of space for more than 60 years. Momentive’s RTV Series and SilCool® adhesives and sealants can be used to adhere tiles in a spacecraft’s heat shield stack-up, or protect critical engine components at temperatures up to 260° C (500° F). They are available in low outgassing versions and multiple viscosities to adapt to different applications and assembly methods. From launch to landing - wherever thermal protection silicones are needed, Momentive’s advanced silicone products are enabling the next generation of space exploration.

Cockpit
1 Black Box Encapsulant
2 Cockpit Instrument Seal
3 Electrical Box Sealant
4 Radome Sealant
5 Sealant, Potting/Encapsulant for Computer Units
6 Weatherstrip Adhesive

Cabin
7 In-flight Entertainment System Sealant
8 Lighting Sealant
9 Overhead Bin Sealant
10 Vent Duct Sealant
11 Window Assembly Sealant

Cargo Area
12 Cargo Door Seal
13 Electrical Wire Sealant
14 Firewall Penetration Sealant

Engine
15 Engine Gasket
16 Engine Molded Seals
17 Engine Electronics Potting
18 Engine/Thermal Shield
19 Filleting Hardware Heads
20 Gas Turbine Bracket Adhesive
21 Joint Fill Compound

Galley
22 Door Gasket Seal
23 Formed Gaskets
24 Galley Sealant
25 Lavatory Sealant Landing Gear
26 Light Lens Sealant
27 Potting Landing Gear Electrical Devices

Sealant
32 Fuel Tank Sealant
33 Hydraulic Gear Box Sealant
34 Lighting Sealant
35 Edge Sealant

Tail
28 General Maintenance Sealant
29 Hydraulic Switch/Control Sealant
30 Fuel Cell Coating
31 Fuel Tank Electrical Device

Wing
32 Heat shielding
33 Black box gel encapsulant
34 Battery and charger sealants
35 Cockpit instrument sealant

POTENTIAL APPLICATIONS
Circuit and terminal Protection
Cockpit instrument sealant
Electrical wire sealant
Sealing, potting and encapsulating computer units
Electronics power equipment encapsulant
Sensors and components
Interlayers/displays/LEDs
Heat dissipation
Battery and charger sealants
Black box gel encapsulant

POTENTIAL APPLICATIONS
Gasketing
Heat insulators and thermal blankets
Heat shielding
Molded seals
Gas turbine bracket adhesive
Thrust reversers heat shielding and insulators
Launch and landing pad coatings
Low Outgassing Applications

Long-term, reliable protection of sensitive electronic components is essential to many electronic applications today. Increasingly small systems and rising circuit densities have resulted in hotter operating temperatures, and driven demand for high-performance solutions for heat dissipation. Momentive has a wide range of products to address these challenges. SilCool® adhesives and compounds can deliver the high thermal conductivity, thin bond lines, and low thermal resistance required for high performance components. For avionics applications requiring environmental or stress protection, Momentive’s silicone adhesives, sealants, encapsulants, and potting materials can help you reduce costs and soar above the competition.

Defense Applications

At Momentive we understand the unique challenges of the defense industry. Equipment has to function in all conditions and in a wide variety of environments. Our sealants, adhesives, potting and encapsulating compounds, optical materials, and thermal management materials can maintain structural integrity, protect sensitive equipment and dampen shock no matter the weather and in even the most extreme temperatures. From aircraft to tracked vehicles and everything in between, count on Momentive’s RTV silicones to perform in mission critical situations.

POTENTIAL APPLICATIONS
Cast in place heat shielding for solar array and optical equipment sealing
Crew capsule applications
Thermal insulation of sensitive components
Protective coatings for critical equipment
Encapsulants and potting for high heat locations
Interior & exterior adhesives
Flexible composite coatings

Product Description

- **RTV 100 Series**
  - High performance paste adhesives
  - MIL-A-46106B

- **RTV 106**
  - Temperature resistant paste adhesive
  - MIL-A-46106B

- **RTV 112**
  - High performance, self-leveling sealant
  - MIL-A-46106B

- **RTV 116**
  - High performance, self-leveling sealant
  - MIL-A-46106B

- **RTV 118**
  - Temperature resistant flowable sealant
  - MIL-A-46106B

- **RTV 120 Series**
  - Paste adhesive
  - MIL-A-46146B

- **RTV162**
  - High strength, non corrosive adhesive
  - MIL-A-46146B

- **RTV167**
  - High strength, non corrosive adhesive
  - MIL-A-46146B

- **RTV8111**
  - General purpose, potting sealant
  - MIL-PRF-23586F

- **RTV8262**
  - High temperature resistant, flowable sealant
  - MIL-PRF-23586F

- **RTV8202**
  - General purpose, potting sealant
  - MIL-PRF-23586F

Potential Applications

- Cast in place heat shielding for solar arrays and optical equipment
- Crew capsule applications
- Thermal insulation of sensitive components
- Protective coatings for critical equipment
- Encapsulants and potting for high heat locations
- Interior & exterior adhesives
- Flexible composite coatings

Satellites

- Thermal insulation
- Protective coatings
- Encapsulants
- Potting for high heat locations
- Interior & exterior adhesives
- Flexible composite coatings

Crew Capsule

- Cockpit instrument adhesives and sealants
- Sealing, potting and encapsulating in high heat locations
- Heat dissipation and heat shielding
- Interlayers/displays/LEDs
- Weather protection and ruggedization
- Long term stability under extreme conditions

Launch Pad

- Launch Pad Coatings
- Thermal Protection for Support Structures
- Engine Sealing
- Satellites
- Thermal Shield Bonding
- Thermally Conductive Materials
- Heat Management
- Wire/Cable Sealant etc.
- FV Bonding
- Potting
- Avionics Coating

Control Panels/Avionics

- Electrical boxes
- Computers
- Black boxes
- Cockpit instrument clusters

Main Launch Vehicle

- Firing Sealant
- Silicone paints
- Gap filling
- Thermal insulation attachment
- Protective Coatings
- General bonding
- Sealing openings
- Coatings and adhesives for stabilizers
- Thermal barriers
- Adhesion and protection for sensors and optics
- Engine Sealing
### Product / Application Selector Guide

#### Potential Products

| One-Component | RTV 106 | RTV 116 | RTV 132 | RTV 162C | RTV 187 | RTV 159 | RTV 160 | RTV 1109 | LSR

**Features**
- High performance adhesives.
- High temperature, flexible adhesives.
- Primerless adhesion to metals, plastics and composites.
- Primerless adhesion to metals, plastics and composites. Two coats on all substrates to achieve 60 psi.

**Potential Applications**
- Primerless adhesions to metals, plastics and composites.
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#### Two-Component

| RTV 31/60 | RTV 251 | RTV 321 | RTV 808 | RTV 540 | RTV 267 | RTV 372/70 | RTV 1200 | RTV 1300 | RTV 7000

**Features**
- Very fast cure adhesives.
- General purpose potting, compound encapsulant.
- High temperature potting, compound encapsulant.
- Ductility and temperature performance. Potting, compound encapsulant.
- Low temperature potting, compound encapsulant.
- Low temperature potting, compound encapsulant.
- Low temperature potting, compound encapsulant.
- Low temperature potting, compound encapsulant.

**Potential Applications**
- Primerless adhesions to many substrates.
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1. RDS products are one-component systems; exceptions noted.
2. MIL spec subject to further qualification.
3. InvisiSil is a trademark of Momentive Performance Materials Inc.